

Poster presentation

Computational Analysis of Insulin in the Ageing Fruit Fly

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from BioSysBio: Bioinformatics and Systems Biology Conference
Edinburgh, UK, 14–15 July 2005

Published: 21 September 2005

BMC Bioinformatics 2005, **6**(Suppl 3):P9

Scenesence is the decline of cellular function that accompanies ageing. A reduced diet has been shown to increase longevity in many organisms including mice, rats, monkeys and fruit flies. This increase in longevity is also linked to reduced metabolic activity and in particular reduced production of insulin. Here we investigate the reduction of an insulin-like peptide that is caused by decreasing the amount of yeast fed to larval and adult fruit flies. The peptide is found in the brain and can be identified and measured by antibody staining and then visualized under a confocal microscope. This produces a stack of images which can then be labeled, and from this a three dimensional model showing insulin quantity, vesicle size and location can be produced. Quantifying insulin production in this way and measuring its responsiveness to diet will enable us to better model the functions of genes acting upstream and downstream of the insulin peptide and the insulin cell surface receptors.